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SOME PASSING COMMENTS.

By TH. L. CASEY.

The recent paper on *Smicronyx* by Dr. Dietz (Trans. Am. Ent. Soc. xxi, p. 113), seems to be a painstaking and discriminative piece of work, and it is for this reason more especially that I regret to find myself still unable to accept his conclusions regarding genera in the group Smicronychi,—not Desmorhines or Desmori, be it mentioned, as *Smicronyx* is a much older name, long since adopted for the group in question.

I fail, for example, to find the slightest difference in a generic sense between the tibial structure of *constrictus* and *profusus*,—that is, between *Desmoris* and *Smicronyx*,—and the habital peculiarities of *constrictus* are plainly reproduced in *griseus* and *obtectus*, and, gradually less distinctly, in other species. The hind tibiæ are of the same general structure throughout, but in certain species the spurs become relatively smaller, although preserving the same form and inward curvature; in these cases there is frequently a small inflexed tuft of hairs which projects downward

from the inner apical angle of the tibia, obscuring the tip of the spur and giving the appearance figured under low power in the case of *scapalis* by Dr. Dietz. If the author will examine a series of specimens under a power sufficient to reveal the true structure —say a two-thirds inch objective, he cannot fail to perceive this. The diversity in size of the tibial spurs is comparatively slight, and is purely specific; the posterior spurs are often noticeably smaller than the others.

The eyes are more or less narrowly separated beneath, but variable in size, and, when larger, of course approximate still more closely; the mere fact of mutually touching occasionally is consequently of no value from a generic point of view, unless accompanied by strongly marked differences in facies. This we do not find in the case of *Synertha*, nor any other structural peculiarity, and I think it will be evident that *Synertha* cannot stand for even a well-marked group, since the eyes approach each other so gradually that it will be impossible to place intermediate species.

There is only one other character given, and this relates to the antennal club; unfortunately this is also without value, as there are all intergrades between the slightly larger and stouter club of some more robust species, and the smaller and slighter club of the majority; there is no radical difference of structure in any direction however.

In all of these cases it will be observed that where difference of facies is principally relied upon for generic separation, Dr. Dietz has assumed a single organic structural character of very slight weight and connected by numerous intergradational forms —non-existent in the case of *Desmoris*—for defining the genus, and where the single structural character is more evident, as in *Synertha*, there is a complete absence of habital peculiarity. In fact, *Smicronyx* is one of those genera like *Mycetochara*, of the Cistelidæ, in which it is impossible to define generic subdivisions, although some structural differences exist; at the same time there is apparently more warrant for generic disintegration in *Mycetochara* than in *Smicronyx*.

Dr. Dietz seems to differ from me to some extent in the identification of LeContean species, and it will be well to take these up in order. In the first place I am altogether certain that my identification of *corpulentus*, *ovipennis*, *griseus*, *obtectus*, *pusio*, *tychioides*, *fulvus*, *sordidus*, *cinereus* and *squamulatus* is correct,

for my types agree in every particular with LeConte's type specimens and descriptions, and were taken in the same, or virtually the same locality. I could not change my views regarding these species therefore, in any event. In regard to *seriatus* we disagree, and it must be admitted that my *seriatus* did not correspond completely with the type of LeConte, and was considered by me as a slight variation; it has apparently been described under the name *spretus* Dtz. I can only say at present that Dr. Dietz may have described the original *seriatus* under that name, but the specimen at present bearing the type label seems to differ likewise from his description in its larger size and other characters. Regarding *vestitus* we seem to agree, but neither of us has described the original *vestitus;* we have, however, described the species bearing the type label at present. There seems to be evidence in several other directions that the original type labels of LeConte have been accidentally shifted in some cases; he could surely not have made such errors of description as in the case of *vestitus*. In the case of *flavicans* my description corresponds with the specimen at present bearing the type label in the LeConte cabinet, but not in every particular with the description. I do not know *flavicans* Lec. (Dietz). We seem to agree regarding *discoideus* and *amœnus*, but my *scapalis* is the form described as *compar* by Dietz. I do not think that it differs specifically from *scapalis*, with the type of which I compared it carefully. My *constrictus* Say, seems to include a number of Dr. Dietz's species; this batch of specimens is still an enigma to me, for, with decided differences in the beak and antennæ, all the other structural characters as well as habitus seem to be similar throughout. It reminds me of the variations in *Centrinus salebrosus*, where a dozen apparent species might be announced, and in fact I originally described some seven or eight in the small subgroup containing *salebrosus*, but afterwards reduced them to the four which will probably prove stable.

I will not further involve the subject by suggesting synonymy, but at the present time need only state that *silaceus*, which Dr. Dietz regards on page 173 as identical with *imbricatus*, bears no resemblance whatever to that species, also that *corniculatus* was not described by Fabricius, as stated on page 164 and twice on 177, but by Fahræus, and that *quadrifer*, on page 148, is not a "n. sp.," but had been previously described.

In conclusion, I am forced to believe that the author has given too much weight to the relative lengths of the basal joints of the antennal funicle, which seem to be peculiarly unstable in *Smicronyx*. They vary sensibly in relative proportion, not only sexually, but among individuals of the same sex, and I cannot perceive that the sex has been mentioned at all in a systematic way in separating species by these variations.

* * * * *

The present time is as convenient as any for alluding to the recent effort of Dr. Brendel (ENT. NEWS, v, p. 195) to prove the identity of *Reichenbachia fundata* with *albionica* Mots., on the strength of a specimen said by his friend Raffray to be one of Motschulsky's types. It would give me pleasure to acknowledge this synonym, if it were not for the fact that Motschulsky was careful in this instance to give a detailed drawing of the male antenna of *albionica*, and this corresponds thoroughly with the species so abundant in the more northern regions of the Pacific coast identified as *albionica* by LeConte. *Fundata* must therefore remain *fundata* still.

Euplectus raffrayi Bndl. (l. c.), is either the male of *Oropodes orbiceps* Csy., or else is an extremely closely allied species of the same genus. It is not a *Euplectus*.

Ctenisis dispar was described by Dr. Sharp from the tropical regions of southern Mexico, near Vera Cruz, and *C. raffrayi* Csy., from the arid parts of Arizona, is beyond doubt a distinct species not particularly closely allied.

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The Absence of Relationship Between Pyralidina and Pterophorina.

By J. W. TUTT, F. E. S., Westcombe Hill, London, S. E.

In ENTOMOLOGICAL NEWS, p. 104, Professor Fernald writes: "Other authors consider the last-named group (Pterophorina) as a family under the Pyralidina, but it seems more natural to consider them a distinct family and place them immediately after the Pyralidæ, to which they seem most nearly allied."

Based on the superficial characters of the imago alone, the two alternatives suggested above were those which authors, who dealt with the imagines and knew but little or nothing of the early

stages, used to adopt, but the study of their biological relations as exhibited by their eggs, larvæ and pupæ show that both of these positions (except so far as they relate to the Alucitina) are utterly untenable.

The "plume" moths must be divided into two distinct families, —the Pterophorina and the Alucitina.

The Alucitina* belong to the Pyraloid section of the Obtectæ, the *larva* of which have a complete circle of hooks to ventral prolegs, and the *pupa* of which is "smooth and rounded, laterally solid, inner dissepiments flimsy. The free segments in both sexes are the fifth and sixth abdominal. Never emerges from the cocoon or progresses in any way and dehisces by irregular fracture."

The Pterophorina belong to the Incompletæ, and have no affinities with Alucitina. Both groups have under the same or similar necessities developed "plume" wings, and this is the only connection. The *pupa* is attached by a cremaster; "less solid and rounded, appendages often partially free. Free segments may extend upwards to the 3d abdominal. The 7th abdominal segment is always free in the male, fixed in the female. Dehiscence accompanied by freeing of segments and appendages previously fixed."

The type of Alucitina may be taken as *Alucita hexadactyla*, that of Pterophorina as *Pterophorus monodactyla*.

The greatest nuisance at the present time is the impossibility of bringing our would-be teachers in the Old and New World into line, so that intelligent scholars in both areas may proceed on the same advanced lines. Professor Fernald's lessons are, I know, called "Elementary," but they need not, therefore, propound exploded notions, nor bring forward as up-to-date science, what recent experiment and observation have proved untenable. We should scarcely offer as an elementary lesson in Geology the Biblical account of the Flood, and the supposed connection between Pterophorina and the Pyralidina is almost as obsolete.

I would suggest that American entomologists, who are interested in the broader biological studies as exhibited in the structure of the eggs, larvæ and pupæ, and who think that biological study

* Called by Prof. Fernald Orneodinæ, probably a name of Mr. Meyrick's, whose classification of the Pyralidina has not yet been accepted in Britain by any lepidopterists of repute.

based on all the stages of an insect is necessary to determine its relationship, and who do not think the good old museum methods of neuration, palpi and hairy eyes (good as they may be as minor individual factors, helping to form a collective opinion) are sufficient for the present ever-advancing era, should read Dr. Chapman's essay "On some neglected points in the structure of the pupæ of Heterocerous Lepidoptera, and their probable value in classification; with some associated observations on larval prolegs" (Trans. Ent. Soc. Lond., 1893, pp. 97–119); The President's address to the British Association considered in its relation to Entomology" (Ent. Record, iv, pp. 262–265; "The evolution of the Lepidopterous pupa" (Ent. Record, vol. v, pp. 24–28) etc.

In the "Canadian Entomologist" for March, Mr. W. H. Edwards writes: "There never will be a final authoritative revision of any genus of butterflies till the preparatory stages in every species of it are known." This is undoubtedly true, in spite of the wails to the contrary. Those who consider themselves entitled to speak as authorities because they study the dried bodies of insects are legion and many would not naturally grant Mr. Edwards' assumption. Others, however, would. I would ask—If this be true for the revision of a genus, how much more necessarily is it so when families have to be classified?

I trust this may commend itself to the attention of some at least of our American lepidopterists, and I beg to thank in advance our editor for allowing me to promulgate these views and to set forth the above facts.

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THE COCCIDÆ FOUND ON IVY (HEDERA).

By T. D. A. Cockerell, New Mexico Ag. Exp. Station.

Having had occasion to study some Coccidæ found on ivy, I have brought together the following notes on the species infesting that plant:

(1.) *Phenacoccus hederæ* (Sign.).—On ivy at Montpellier, France.

(2.) *Lecanium maculatum* Signoret.—On ivy at Montpellier, France.

(3.) *Lecanium hesperidum* (L.).—Comstock in America, and Maskell in New Zealand, mention this as found on ivy. Mr. J. Fletcher sent me specimens on *Hedera helix*, which came from

British Columbia. Douglas records what was thought to be *L. lauri* (Boisduval) on *Hedera;* but as Mr. Maskell has pointed out, it appears to be impossible to recognize *lauri* as a species distinct from *hesperidum.* If *lauri* were to be held distinct, perhaps the specimens from Mr. Fletcher might be referred to it; but my own experience of these forms, though not very extensive, quite bears out Mr. Maskell's contention that the two names indicate but one species.

(4.) *Aspidiotus hederæ* (Vallot) Signoret.—Found on ivy and other evergreen plants in Europe. In America it is not recognized, but *A. nerii* (Bouché) is recorded as found on ivy in Florida and New York. On leaves of *Hedera helix* from British Columbia, sent by Mr. Fletcher, were scales which I noted as *Aspidiotus nerii* variety. Having now received some ivy leaves from Mountain View, California (E. M. Ehrhorn), much infested by the same scale on the upper side, I have been led to look more closely into the matter. The scales are pale brown, with sublateral pale yellowish very inconspicuous exuviæ; in structure, the insect is like *A. nerii;* there are three pairs of lobes, and the usual groups of ventral glands. Certainly, to the best of my judgment, the insect is a variety of *nerii.* But is *hederæ* the same? The European species is supposed to have central exuviæ, and no groups of ventral glands, otherwise it seems to agree sufficiently.

My impression decidedly is, that our *nerii* var. on ivy is true *hederæ*, notwithstanding apparent discrepancies; but if so, the two are hardly distinct species. Should this surmise prove correct when European *hederæ* has been compared with true *nerii*, a curious result appears to follow,—namely, that *A. hederæ* stands as the species, and *nerii* (typical form on oleander) falls as a variety of it. *A. nerii* dates from 1833; according to Comstock, the date of *hederæ* is 1829. I gather from Signoret's work, however, that Vallot published two papers, the first in 1830, the second in 1839. I must leave it to those who have access to the papers of this author to ascertain the true date.

(5.) *Asterolecanium hederæ* (Licht.)—Found in France, and described as a *Planchonia. P. valloti* Licht. is the same. Dr. J. V. Carus has kindly copied for me the original description, to which I had not access. Last year Targioni-Tozzetti described *Asterolecanium massalongianum*, a supposed new species found

on *Hederea helix* in Italy, associated with *Aspidiotus hederæ*. Without having compared specimens, it is perhaps rash to give an opinion, but I have little doubt that *P. hederæ* Licht. and *A. massalongianum* Targ. are identical, the former of course having priority. The description by Lichtenstein is short, and there is no figure; whereas, that of Targioni-Tozzetti is detailed and well illustrated.

Thus the ivy Coccidæ, nominally eight, may be reduced to five by the suppression of *L. lauri*, *A. nerii* and *Ast. massalongianum*.

———o———

Addition to a Local List of the Genus Catocala, and a note on Papilio cresphontes.

By Geo. A. Ehrmann, Pittsburgh, Pa.

I find in looking over my "Local List of the Genus Catocala," which was published in the Ent. News, vol. iii, pp. 168–69, that I am now able to make considerable increase in it, especially with the material that I have accumulated during the collecting season of 1893, and some few that I received from some of our local collectors. I have not listed any that were not captured in or about Pittsburgh. The additions are as follows:

Catocala elonympha Hbn.
" *micronympha* Gn.
" *cerogama* v. *bunberi* Grt.
" *ilia* v. *uxor* Gn.
" *parta* v. *perplexa* Strk.
" *relicta* Walk.
" *habilis* v. *basalis* Grt.

Catocala denussa Ehr.
" *inubens* v. *hinda* French.
" " v. *flavidalis* Grt.
" *amatrix* v. *nurus* Walk.
" *viduata* Gn.
" *agrippina* Strk.
" *lucetta* H. Edw.

With these additions I have increased my previous list to thirty-nine species "including a new species to the fauna of Boreal America," and twelve catalogue varieties.

Papilio cresphontes Cram.—This species though very common south of here has been taken quite frequently north, east and west of our locality, but never to my knowledge been seen in our vicinity until the Summer of 1893, when it appeared among us as some spirit from the fairy lands, and no doubt it has come to stay, as I have taken five males and two females from the 15th to the 29th of August.

ON A CLASSIFICATION OF ARTHROPODS.

By NATHAN BANKS.

Prof. J. S. Kingsley has recently given a classification of Arthropods (Tuft's College Studies, No. 1; and Am. Nat. 1894, pp. 188-220). Though entomologists do not often care for such things, still the opinions of the "general biologist" may sometimes merit attention. Prof. Kingley's classification is based on embryological data where it is obtainable. He divides the Arthropods into three great groups: Branchiata, Insecta and Diplopoda, leaving unplaced the Pantopoda, Pauropoda, Tardigrada, Malacopoda and Linguatulina.

For many years it has been plain that the Arachnida were more closely related to the Crustacea than to Insecta. This fact has been the death of the old group Tracheata. But, I think that with the disappearance of the name Tracheata should also go that of Branchiata; for the latter is certainly more uncharacteristic of the forms placed under it than is the former. The Branchiata are divided into the Crustacea (including Trilobites and the true Crustacea) and Acerata (including Limalus and Arachnida). Insecta are separated into two groups (classes): Chilopoda and Hexapoda. Beyond this the classification is but little developed, except in the Crustacea, where he follows Grobben. The most interesting part of the paper is the attempt to homologize the appendages of the various groups. The results are, that the first appendage (antennæ) of Hexapods, he finds is not represented elsewhere in the Arthropoda. That the second appendage of Hexapods (probably labrum, as it is cephalad of the mandibles) is not represented in either the Arachnida or Limulus, but is homologous with the antennules of Crustacea. After this the appendages follow in regular order. One is not surprised that after such conclusions Prof. Kingsley is almost ready to doubt the unity of the Arthropoda. One reads (p. 20, Tuft's College Studies, No. 1) that the Arthropoda have "typically, a pair of appendages to each somite." But there is not a word of explanation why two pairs of cephalic appendages have disappeared in both Arachnids and *Limulus*, and one in the Crustacea. Appendages near the mouth appear to be generally desirable and useful in Arthropods.

The purpose of the evolutionist I take to be the search for

unity. It is for this that I believe in the unity of the Arthropoda, the more so, since the appendages of the head and thorax can be homologized without the loss of a single member. The Arthropoda may be readily divided into two great groups by the extension of Pocock's division of the Tracheata; into Opisthogogoneta, with the openings of the generative organs near the end of the body; and the Progoneta, with the openings near the end of the thorax. The former includes Peripatus, Chilopoda and Hexapoda. The latter includes Crustacea, Trilobites, Limulus, Arachnida and Diplopoda. Indeed, it is the last group (Diplopoda) that furnishes a key to the origin of the Progoneate structure. At birth they are properly Opisthogoneates, but by the insertion of a series of segments between the penultimate and the last segments, the generative openings are left near the middle of the body. Because of this and of the primitive nature of the mouth-parts the Diplopoda may properly be considered as the ancestors of all the other Progoneata.

The phylogeny of the Opisthogoneata is in a direct line. Peripatus, as stated by Prof. Kingsley is the most vermiform of all Arthropoda. From it has come the Chilopoda, and from the latter the true Hexapoda. The progress of evolution is marked by cephalization and compactness. In the Chilopoda there is not, as Prof. Kingsley asserts (l. c. p. 38), a stigmata to each segment; this is true only of the lower groups; in the higher groups as the alternate segments shorten the alternate stigmata disappear.

The primitive number of cephalic appendages is three; the number presented by the most primitive Arthropod, Peripatus. This is the number in the Chilopoda, and in Hexapoda, as I have previously shown (Am. Nat. 1893, p. 400), the first two pairs of Chilopod legs have advanced to form the compound maxillæ and labium. So that the head of insects bears at least five pairs of appendages besides the labrum, three behind the mandibles.

The Diplopoda have come from the same stem as the Chilopoda and possess the three cephalic appendages, and in their young stages but three pairs of legs; six pairs of appendages in all; and this is the number possessed by *Limulas* and Arachnida. Leading arachnologists hold that the mandibles of Arachnids are homologous with the antennæ of other Arthropods (see Simon, Hist. Nat. d. Araig. 1893). Particularly significant is the posi-

tion of these appendages is the Archeidæ. Two pairs of appendages in Arachnidu function as mouth-parts and four as legs; yet in some forms, as Solpugida, Thelyphonida and Phrynida, the first pair of legs serves the purpose of antennæ, and are structurally different from the other pairs.

Within the Arachnida Prof. Kingsley recognizes the following orders in the order mentioned: Scorpionida, Thelyphonida, Araneida, Solpugida, Pseudoscorpii, Phalangida, Acarina. I don't suppose that this is a lineal arrangement, but rather from the Scorpionida to the Araneida, and from the Solpugida to the Acarina. The Phrynida should rank as a separate order, for they are fully distinct from the Thelyphonida as from the Araneida. Two lines of development can be traced in the Arachnida, the sternal and the asternal. The latter is the earliest and embraces the Scorpionida, Pseudoscorpionida, Solpugida, Acarina and Thelyphonida; the former the Phrynida, Phalangida and Araneida. The primitive Acarina (Eupodidæ) are asternal; and, besides the absence of cephalic segmentation, there are no important characters to separate certain Eupodid genera (*Erynetes*, *Rhagidia*) from the Solpugida. The Phalangida plainly came from the Pseudoscorpionida through such forms as *Siro*. The Araneida of course came from the Phrynida. The relation of the Scorpionida to the ancient Eurypterids is pointed out by Prof. Kingsley, and clearly indicates the origin of the Arachnida from that group. The Eurypterids and Trilobites have had a common stem leading back to the Diplopods, and the Trilobites bear about the same relation to the Crustacea that the Eurypterids do to Arachnida.

The appendages of the Crustacea I would homologize as follows: Three pairs of appendages has the typical Arthropod head, no more. The Isopods have a pair of mandibles and two pairs of antennary appendages; directly behind the mandibles is the lower lip, this indicating the end of the head. The other mouth-parts are cephalized thoracic legs. Where are the maxillæ of Diplopoda? By the process of cephalization the thoracic segments and their appendages have crowded the maxillæ to one side and in front, and they appear as the second pair of antennæ; the antennules of Crustacea being the true antennæ; and instead of believing that in several groups of Arthropoda one or two pairs of cephalic appendages have disappeared and left not even

a trace in the embryo, I would claim that the typical three pairs found in *Peripatus* are always present.

In the various groups treated they appear under the following names:

CHILOPODA.	HEXAPODA.	DIPLOPODA.	ARACHNIDA.	CRUSTACEA.
Antennæ	Antennæ	Antennæ	Cheliceræ	Antennules
Mandibles	Mandibles	Mandibles	Palpi	Mandibles
Maxillæ	Maxillæ (in part)	Maxillæ	Leg I	Antennæ
Leg I	Labium	Leg I	Leg II	Maxillæ I
Poison-claw	Maxillæ (in part)	Leg II	Leg III	Maxillæ II
Leg III	Leg I	Leg III	Leg IV	Maxilliped I

As to the other groups. The Pauropoda should be placed by the side of Diplopoda. The differences between them would hardly be of ordinal value in Hexapoda. The Pantopoda do not differ essentially from Arachnida and properly belong among the mites. Tartigrades are needlessly separated from the Acarina. The Linguatulina may, as some suggest, not belong to the Arthropoda.

The ascension of any group of animals to a new element is productive of great variation, many disappear. Three times this has occurred in the history of Arthropoda; once when an Arthropod obtained wings, and the various Neuropteroid groups most numerous in ancient times bear witness; again when a Diplopodous form took to the water, and of the many Trilobites and Eurypteroid forms only *Limulus* remains; and again when a form similar to *Eurypterus* came on land and left the isolated groups of the lower Arachnida.

AN OUTBREAK OF GRASSHOPPERS.

By F. S. DAGGETT, Duluth, Minn.

In the October, 1893, number of the NEWS I reported an outbreak of grasshoppers at Duluth, Minn., and their effect indirectly upon Lepidoptera. This year is a repetition of the scourge, intensified by drought, and this month (July) forest fires have added a blue veil of smoke hiding the landscape from view. Taking it all around it has been the most unsuccessful year, from a collecting standpoint, I ever experienced. This condition of

affairs, so far, has not been charged to tariff tinkering, probably because there is not another collector of insects among the 75 to 100,000 people at the head of the lakes, and therefore no opinion has been expressed.

This afternoon (July 26th) I walked 24 blocks through the sparsely settled outskirts where I have heretofore found my best butterflies, and saw during that walk only three specimens, one *V. antiopa* and two *Pieris rapæ*, and they acted unnatural and nervous, as if lost from their natural haunts. One of the *rapæ* hovered over a large clump of thistles in a gully coming down from the hills, but the grasshoppers had gnawed deep into the leaves between the thorns and from one to four sat braced among the spines of the flower, mowing off the tops of the blossoms as far down as they could reach, so *Pieris rapæ* passed on to another stalk as it, no doubt, had been doing all day with hunger still unsatisfied.

V. antiopa bred again on the poplars, but in less quantities than last year, and of a dozen cocoons I found under the porch of an old building over half were partially gnawed away by grasshoppers. Last year, the first year of the grasshoppers, Lepidoptera appeared in usual numbers, but seemed to live but a few days, wandering off into the woods and out-of-way places in search of food; this year no adults to speak of have appeared. One can walk many blocks without seeing a single specimen of the most common kinds. From this and the condition of *antiopa* cocoons, I infer that chrysalids of all kinds have suffered from the visitation.

Numerous irregular holes, the size of a dime, in the muslin curtains in the kitchen, brought down upon the heads of my children the ire of our Swede domestic, but they soon exonerated themselves by catching a number of grasshoppers in the act of carving new ones; fine lace curtains in parlor suffer as well; in fact, eternal vigilance is the price of curtains now-a-days. Ladies and children bring them into the house in folds of their dresses, and they eventually work towards the light eating anything about the windows containing starch.

One of our neighbors, who delights in decking her trim little body in the most dainty of dresses, found a cool, comfortable spot for her chair on the lawn, earlier in the season, and enjoyed an hour or two in fancy work; later her friends suppressed a smile when she related a harrowing tale about three great holes

the "blood-thirsty wretches" ate in the back of her new dress. It wasn't blood they were after, but starch; but that was no consolation to the owner of the dress. They are nevertheless cannibals of the deepest dye, as every foot of sidewalk will attest. They are being constantly crushed under foot of passers by and around each luckless one a cluster of live ones gather, heads in center and tails radiating like the points of a star, each busy eating his fill of the remains.

Surrounded as we are, except on the lake side, by a great pine region, this outbreak is interesting and well worthy of a more extended study, especially its effect upon insects usually found upon flowers and the lower growths of vegetation.

NEWSPAPER ENTOMOLOGY.—Queer stories are found in the newspapers from time to time, and none more strange than those on entomological subjects. Often people are made responsible for statements they never made, and yet more often the facts actually stated are beyond recognition when they are published. Thus it has happened that I have become, somehow, authority for the statement that all the dying back of twigs and branches of fruit trees was caused by the "Locusts," whereas my only statements on the subject have always been that the slits made by the Cicada in ovipositing would cause a dying back of small twigs and branches to the point of injury. I was far from attributing all dying back to the same cause. As a matter of fact fruit trees have suffered severely from several causes, among which the Cicada injury has been hardly conspicuous, except in a few localities. The "blight," that peculiar disease which is so baffling to Mycologists, has been frightfully abundant, and is responsible for most of the injury. The apple tree borer, *Amphicerus bicaudatus*, has done injury in many localities, while in others the longicorn, *Eupogonius tomentosus*, is responsible.

In the Philadelphia papers for July 25th, Dr. J. Cheston Morris is credited with a paper read before the Academy of Natural Sciences in which the trouble is all charged to "a newly discovered pest, the *Scolitus pyri*." It would be unfair to judge the doctor's paper by the newspaper abstract; but a more misleading account could scarcely be given of the actual condition of affairs. While I cannot of course assert that *Xyleborus pyri* is not responsible for some of the injury in New Jersey as well as in Pennsylvania, yet it is certain that it is only a very small percentage that can be so infested; only three or four trees having come under my notice out of thousands of cases examined by me. The description of the larva as a grub with a black hard head, three pairs of black feet and "seven or eight projections of false feet" is peculiarly excellent. The worst feature of the case is that the article is making the rounds of the rural and agricultural press, and will be credited by hundreds of farmers who will add to it their already large stock of misinformation.—J. B. S.

ENTOMOLOGICAL NEWS.

Published monthly (except July and August), in charge of the joint publication committees of the Entomological Section of the Academy of Natural Sciences, of Philadelphia, and the American Entomological Society. It will contain not less than 300 pages per annum. It will maintain no free list whatever, but will leave no measure untried to make it a necessity to every student of insect life, so that its very moderate annual subscription may be considered well spent.

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PHILADELPHIA, PA., SEPTEMBER, 1894.

TO OUR FRIENDS.

Now that the Summer is over, and that this is usually the time for every one to start work again, a few ideas that the season calls forth may not be amiss. How many of us have properly captured our specimens? and how many have ruined them? How many have put the exact locality and date on paper? and how many have not? How many have made observations on their work for publication in the NEWS? We hope all have. As stated, most people begin serious work after the Summer heat, about September 1st, but we would caution our entomological friends against ceasing to collect at this time, as some of the best collecting and some of the rarest captures are to be made during September and part of October. We hope you all have had a pleasant Summer and many enjoyable days with the net in field and woods, and that renewed health and strength and enjoyment of the beauties of nature may be the outcome of your hobby. Those in charge of the NEWS have had a little recreation and a chance to do some entomological work for themselves and are now prepared to begin their labors again in your behalf. We hope you will aid us all you can. Our work is a labor of love, and we trust it is appreciated. The NEWS needs additional subscribers to enable us to make it all we desire, and if each present subscriber would get some entomological friend to send in his or her subscription it would be showing a practical interest which would materially help us.

TRANSACTIONS of the American Entomological Society, vol. xxi, No. 3, now in press, will contain the following papers: New species of Noctuidæ from tropical America, by W. Schaus. Catalogue of the described Jassoidea of North America, by Edw. P. Van Duzee. Descriptions of new Parasitic Hymenoptera, I, by Wm. H. Ashmead.

DEPARTMENT OF ECONOMIC ENTOMOLOGY.

Edited by Prof. JOHN B. SMITH, Sc. D., New Brunswick, N. J.

Alternating Generations. A Biological Study of Oak Galls and Gall Flies. By Hermann Adler, M.D., Schleswig. Translated and edited by Chas. R. Straton, F. R. C. S., F. E. S., Oxford, at the Clarendon Press. New York, Macmillan & Co., pp. xi, et 198, 3 pl., col.

Under the above title we have an extremely interesting and valuable work, to which both author and translator have contributed a series of careful observations that much enlarges our knowledge of the subject under consideration.

The subject of parthenogenesis among insects is a most attractive one, and offers great fields for original work; none of them wider than among the Cynipidæ, where it appears in a variety of forms, alternating with normal sexual reproduction in many instances; but frequently established as a constant feature in the life cycle of the species. In a rather lengthy introduction the translator discusses the general subject and sketches historically the investigations made, the conclusions reached, and the theories upon which the phenomena have been explained. He describes the formation of the reproductive cells in both sexes, the modifications that they undergo, and cites cases of spermatogenesis to prove that potentially the male cells may be reproductive, while the possibility of continued agamic reproduction is theoretically demonstrated.

The author first cites the observations therefore made on the alternation of generations among oak gall-flies, explains the methods by which his own observations were made, and then gives in detail the records of a long series of experimental breedings, proving conclusively that the species of certain genera are merely agamous forms of those of other genera, and, finally, that in certain other forms males never appear, the agamous females ovipositing freely and the eggs proving fertile in all cases. An interesting chapter is devoted to the formation of the galls, proving that the adult does nothing to influence it. "Hitherto it has constantly been stated that the prick of the gall-fly and the simultaneous introduction of a glandular secretion excited a specific cell growth which led to the formation of the gall. This, I hold, only begins when the larva emerges from the egg." "The moment the larva has broken through the egg covering, and has for the first time wounded the surrounding cells with its delicate mandibles, a rapid cell-growth begins." Observations made substantiate this conclusion; but it is limited in its application to Cynipid oak-galls because numerous exceptions exist in other groups. A detailed description of the ovipositor is given, the method of its use is observed and the function of the peculiar egg stalk in this family is made clear.

Finally, a chapter is devoted to an explanation of the reasons for this alternation of generations and how it was originated; the conclusion

being that: "In any case I consider it certain that parthenogenesis is the primitive mode, and that sexual reproduction is subordinate to it."

The book is one that should be in the hands of every biological student for its scientific interest.

Bisulphide of Carbon as an Insecticide of very limited range has been known for many years, but for ordinary field crops it has not been in general use. In the 1893 meeting of the Association of Economic Entomologists, Prof. Garman mentioned that he had used it in the garden, covering melon vines with a tub and allowing a quantity of the bisulphide to evaporate, destroying thereby the Aphids infesting the vines. This interested me greatly, because the melon louse, *Aphis cumuris* Forbes, is at times a most destructive pest in parts of New York and New Jersey, and one of the most difficult to deal with, owing to the fact that the leaves are close to the ground and that they curl as soon as seriously effected, making it simply impossible to reach them all, even with an underspray nozzle. A lot of pot-grown plants becoming badly infected with Aphids, in the botanical laboratory, I made a series of experiments which were not recorded, but which determined that the liquid evaporated slowly; that it killed plant lice very readily, and that it killed plants with equal facility if used in any large quantity. The appearance of the lice on canteloupe and citron melons in New Jersey this season gave me an opportunity of making experiments, and Mr. Howard G. Taylor, of Riverton, N. J., kindly permitted me to kill as many hills as might be necessary to carry them on. I procured a dozen wooden bowls, thirteen inches in diameter and six inches deep, inside measurement, and a series of small, graduated tumblers, in which "one teaspoonful" and "one dram" corresponded. To get at the rate of evaporation I poured one dram into a graduate and left it exposed, but placed it in a shaded spot. It required fifteen minutes to disappear completely. Eleven badly infected hills were then covered by bowls, the vines being crowded under when necessary, and one dram in a graduate was placed under each. At the end of twenty minutes I lifted one bowl, found that less than half the material had evaporated, that all the Coccinellidæ were dead, the small lice dying and the Diabrotica, ants and large viviparous Aphids, were yet all alive. Ten minutes later there was little change. At the end of three-fourths of an hour, though scarcely more than half the liquid was gone, all save a few of the mature, wingless, viviparous females were dead. In one hour there was yet liquid in all the graduates, but all the Aphids were dead, or appeared so. To test the matter all the hills treated were marked to be examined later. Another series of infested hills were selected, but the experiment was varied by using two drams of bisulphide in some cases, using a shallow saucer in others, pouring the liquid on the ground in two cases and covering other hills with large square boxes, some of them anything but tight. All coverings were left on for one hour, undisturbed. Examined first a square box covering a shallow saucer with two drams of bisulphide; found this all evaporated and every aphid killed.

The bowls covering the saucers in which one dram was used showed like results. Two square boxes which were not tight, covering graduates with two drams of liquid had all insects unaffected and the material scarcely half gone. The two bowls under which the bisulphide was poured on the ground were then lifted and all the aphids were found dead. All the other hills covered by bowls showed all the lice dead and not all the bisulphide evaporated. The hills first treated were again examined and there was no sign of recovered life anywhere visible. Bowls, graduates, and bisulphide were left with Mr. Taylor, and all the treated hills were marked for later examination and to note the effects of the chemical. The experiments were made in the middle of a very hot day, the thermometer 93° in the shade, little or no wind blowing, and the sand so hot that it burnt through shoe soles and could scarcely be handled more than a few moments at a time. Many of the vines showed the edges of the leaves, when the covers were removed, yellowed and set with numerous drops of a clear liquid. I feared permanent injury, but instructed Mr. Taylor, if he found that the plants died, to continue his work before the sun was high or after it was quite low. He wrote me under date of July 19th: "The hills you treated when here last started to grow nicely, except the two hills where the Carbon was poured on the ground; that killed them. The treated hills showed no lice at last examination."

I am quite satisfied from the experiments above recorded, and from others that were not recorded, but were simply made to settle practical questions, that, in melon fields at least, bisulphide of Carbon can be used satisfactorily and effectively. It has the enormous advantage of reaching everything on all parts of the plant; not a specimen escaping. With a stock of from fifty to one hundred light covering boxes about eighteen inches in diameter, as many shallow dishes and a bottle of bisulphide the infested hills in a field can be treated in a comparatively short time.

Contagious Disease of the Chinch Bug.—Under this title Prof. Snow has given us a pamphlet of 247 pages, principally occupied by reports from experimentors in various counties of the State of Kansas. The report is one of very great interest from a variety of standpoints, and there is no doubt that we are getting a little nearer to an understanding of the factors in the problem of destroying this serious pest by means of the disease attacking it; and yet the teaching of this report is that there is nothing at all certain about the matter, because, although 1852 experiments are recorded as successful against 1053 unsuccessful, and 665 doubtful, those successful experiments are not in all cases to be accepted without question; while on the other hand a very fair explanation is given for the lack of success in one class of cases. It appears from the report that meteorological conditions are very important in either facilitating or checking the spread of the disease, and that with the best kind of infection for use, an absence of moisture will prevent the spread of the disease. This limits the usefulness of this disease enormously; success depending upon that most fickle of all things, the weather. In many of the more eastern

localities the remedy would be of no use at all; but perhaps in Kansas, and in some of the adjoining States better success may be anticipated. One very important point is made clear in the present report, and that is, that the fatal disease is the white fungus or *Sporotrichum globuliferum*. It will be extremely valuable to learn from other States where these experiments have been tried what the success has been. In this connection it is interesting to note Dr. Forbes' words in Bulletin No. 33 of the Illinois Experiment Station concerning the use of contagious diseases. He says: "the results of this method are, however, not sufficiently certain to warrant an entire dependence upon it, and it should be made one feature only of a general and concerted campaign." The experiment in Illinois will be watched with a very great deal of interest, and will be of great use as determining the applicability of this method in the Mississippi Valley under circumstances widely differing from the state of affairs in Kansas. In Iowa Prof. Osborn has made experiments during the present year, the outcome being decidedly unfavorable *because of dry weather*.

A New Insecticide.—Under this caption Dr. C. H. Fernald calls attention to arsenate of lead in Bulletin No. 24 of the Hatch Experiment Station of the Massachusetts Agricultural College, and he gives in detail experiments made on the killing power of this substance on the tent caterpillar and the larva of the potato beetle. He finds it sufficiently effective at the rate of one pound in one hundred and fifty gallons of water, while no injury to foliage appeared where it was used at the rate of one pound in four gallons of water, an advantage which no other arsenical mixture can boast of. The materials, acetate of lead and arsenate of soda are cheap, and the insecticide is prepared by putting eleven ounces of the former and four ounces of the latter into a hogshead containing 150 gallons of water. It will be seen at once that, if the new material will do what is claimed for it, it possesses many advantages over Paris green and London purple. It is certainly well worth a thorough trial.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

[The Conductors of ENTOMOLOGICAL NEWS solicit, and will thankfully receive items of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for certain issue. Twenty-five "extras" without change in form will be given free when they are wanted, and this should be so stated on the MS. along with the number desired. The receipt of all papers will be acknowledged.—ED.

THE WHISTLING TREE.—A species of *Acacia* which grows very abundantly in Nubia and the Soudan is also called the "whistling tree" by the

natives. Its shoots are frequently, by the agency of the larvæ of insects, distorted in shape and swollen into a globular bladder from one to two inches in diameter. After the insect has emerged from a circular hole in the side of this swelling, the opening, played upon by the wind, becomes a musical instrument nearly equal in sound to a sweet-toned flute.—*Scientific American Supplement.*

NORTHWARD RANGE OF SOUTHERN SPECIES.—In the neighborhood of the Dismal Swamp, upon *Pontederia* blossoms, I have taken *Xylocopa micans* and *Bombus scutellaris.* Can others give a more northerly distribution for these species? They appear characteristic of the southern subregion eastward. *Parnopes chrysoprasinus* Sm., described from N. Carolina, occurs in Connecticut. *P. edwardsii* Cress. differs only in its unnotched scutellar process; from California. *Tachytes aurulentus* Fab. occurs in Connecticut. *Prionony.x thomæ* Fab. I have taken in Connecticut. *Elis 4-maculata* and *Monedula carolina* occur on the coast of New Jersey near New York. *Odynerus bravo* Sauss., described from the coast of Mexico, I have taken at 1500 feet altitude in the White Mountains of New Hampshire. *Bembex pallidipicta* Sm., described from Mexico, although properly a Pacific coast insect, occurs at Centre, N. Y.—W. H. PATTON, Hartford, Conn.

NOTES ON OUR CASSIDIDÆ.—During the progress of that portion of the "Biologia" it was a pleasure to send for study many of our species to Mr. Champion. This has resulted in the discovery of some synonymy, which, with other comments, are here given:

Cassida pallidula Boh.—This name replaces *texana* Cr.

C. callosa Boh.—Is very closely related to *rugosa* Boh., but the claws are less dilated at base. The latter is darker in general color and the pellucid space at sides of elytra very small.

Coptocycla significa Hbst.—This name will replace *guttata*, which belongs to an East Indian species.

C. Bonvouloiri Boh.—This little species has been taken in the Penins. Cal.

C. bicolor.—This name is three years older than *aurichalcea* Fab.

C. emarginata Boh.—This name will replace *arizonæ* Cr.

The following species have been recently examined from the Penins. Cal.: *Mesomphalia exclamationis* Linn., *Physonota alutacea* Boh. var. *cyrtodes* Boh.—GEO. H. HORN, M.D.

THE FIELD MEETING AT JAMESBURG.—On July 4th last, the Entomological Societies of New York, Newark, Brooklyn and Philadelphia, met at Jamesburg, N. J., for the purpose of collecting, meeting socially, and to have a general outing and good time. The party was met at the station at Jamesburg by conveyances, and after a short ride through the woods and between the cranberry bogs, arrived at the grove, which was made the headquarters. This is quite a pretty woods skirted on either side by the bogs; and there are good collecting places in every direction. Nets

were unfurled and apparatus gotten out, and after general greetings and handshakes the different individuals scattered in every direction in search of insects. At half past twelve all had assembled for luncheon and a general social meeting was held. After luncheon pictures were taken by Dr. Skinner of the whole party, and also the representatives of the different cities participating. Prof. Smith was industriously in search of snap kodak shots, and says he secured some very funny and interesting pictures. The afternoon was spent as each individual wished to spend it.

The collecting was fairly good, and as usual Lepidoptera and Coleoptera were the orders receiving most attention. Among the butterflies of interest were *Satyrus* var. *maritima*, *Thecla titus*, *Neonympha canthus*, *Pamphila massasoit*, *P. pontiac*, *Argynnis idalia*, etc. A few good things were taken among the Coleoptera. After a very pleasant day the party returned to the station to take their respective trains for home. Among those who attended were the following: From New York, Brooklyn, Newark and the upper part of Jersey—Prof. John B. Smith, Jacob Doll, George Stortz, Edwin Bischoff, C. P. Machesney, Wm. Beutenmüller, Chas. Derleth, Jr., Herman A. Loos, August Miller, Frank Rabe, Lewis T. Muench, Francis Fillion, Raymond Ditmars, Pierce Morange, Dr. Ottolengui. From Philadelphia and vicinity: Dr. S. M. Castle, Edward Wenzel, A. Trescher, C. Boerner, T. Schmitz, Henry Wenzel, H. Wenzel, Jr., C. Liebeck, Wm. J. Fox, Chas. W. Johnson, Philip Nell, Frank M. Jones, Dr. H. Skinner, Albert Hoyer, Frank Hoyer, Philip Laurent.

The members of the Feldman Collecting Social, of Philadelphia, wore appropriate club buttons. It is to be hoped that many more of these meetings will be held, and that in the future they may be even more largely attended.

Identification of Insects (Imagos) for Subscribers.

Specimens will be named under the following conditions: 1st, The number of species to be **limited to twenty-five** for each sending; 2d, The sender to pay all expenses of transportation and the insects to become the property of the American Entomological Society; 3d, Each specimen must have a number attached so that the identification may be announced accordingly. Exotic species named only by special arrangement with the Editor, who should be consulted before specimens are sent. Send a 2 cent stamp with all insects for return of names. Before sending insects for identification, read page 41, Vol. III, Address all packages to ENTOMOLOGICAL NEWS, Academy Natural Sciences, Logan Square, Philadelphia, Pa.

Entomological Literature.

HAMPSON'S MOTHS OF INDIA.

BY HARRISON G. DYAR.

This work deserves more than the brief notice given to it a year ago in the NEWS (vol. iv, p. 130).

Though dealing with the fauna of an antipodean country, the work is of much interest to American entomologists. This is due to the valuable

key to the families of the moths as well as to the fact that many of the genera treated of are found with us also. The whole work appears to be as much condensed as possible, and the author gives us his ideas of the relationships of the several families in a single page, expressed in the form of a "genetic tree." According to this tree the first division of the moths is made into two groups which correspond exactly to Prof. J. H. Comstock's "Jugatæ" and "Frenatæ," though Mr. Hampson does not apply any terms to them. Next comes a branch which gives rise to a group of six families, the Pyralidæ, Pterophonidæ, Aluctidæ, Thyrididæ, Drepanulidæ and Callidulidæ. Following up the main stem of the tree we reach the Tineidæ, which give off two branches, one giving rise to the Sesiidæ, and the other to a group of families including the Zygænidæ (= Anthroceridæ), Cossidæ, Psychidæ and several others. The only incongruous element in this group is the Syntomidæ (= Euchromiidæ), which should rather be regarded as a high development of the Arctian type. Next on the main stem come the Tortricidæ, followed by the Nolinæ. This is unexpected, as, with us, *Nola* seems to be one of the more specialized forms of the Arctian type, and not a generalized one. At this point one branch gives rise to the families allied to the Arctiidæ, and another to a group of three families, the Eudromidæ, Lasiocampidæ and Limacodidæ. I am at a loss to imagine a reason for this association. The main stem further gives rise to the Noctuidæ and their close allies, and the Notodontidæ and Eupterotidæ, previously to which a branch gives rise to the Sphingidæ. Above the Eupterotidæ the apex of the tree and the highest degree of specialization is reached with the Saturnina; but the Bombycidæ give rise to the Geometridæ, Epiplemidæ, Uraniidæ and Epicopiidæ. I am not sufficiently familiar with the last three families to express an opinion on them; but I think that this position for the Geometridæ can hardly be defended.

The book appeared subsequently to Kirby's Catalogue of Lep. Het., vol. i, but not enough so as to include any references to it. The nomenclature differs somewhat from Kirby's, owing principally to the fact that the author discards entirely Hübner's Tentamen names, and adopts the generic terms of the "Verzeichniss" only when they have been subsequently described by other authors. Still he somewhat inconsistently credits them to Hübner and uses the dates of the "Verzeichniss" to get priority for them.

In determining the types of the older generic names Hampson differs from Kirby in six important instances. As Kirby's book appeared first his determinations must prevail, unless ill-founded, and Hampson's names should be changed, as follows:

1. Page 46, for genus *Tagora* read *Sphingognatha* Feld.
2. " 49, " *Ganisa* read *Tagora* Walk.
3. " 212, " *Syntomis* read *Zygæna* Fab. and changed Syntomidæ to Zygænidæ (= Euchromiidæ).
4. Page 230, for genus *Zygæna* read *Anthrocera* Scop. and changed "Zygænidæ" to Anthroceridæ.

5. Page 333, for genus *Drepana* read *Platypteryx*.
6. " 347, " *Cilix* read *Drepana* Schr.
7. " 425, " *Odonestis* read *Philudoria* Kirby.
8. " 436, " *Orgyia* read *Notolophus* Germ.
9. " 447, " *Dasychira* read *Orgyia* Ochs.
10. " 487, " *Leucoma* read *Arctornis* Germ.

A few other minor corrections are:

Page 259. According to Kirby *Heterusia* is preoccupied. The name should be *Eterusia*.

Page 283. *Chelura* is preoccupied; read *Achelura* Kirby.

" 298. The subgenus *Heylærtsia* nov. appears to be the same as *Platæceticus* Pack., Guide Study Ins. p. 291 (1869); Ent. Amer., iii, p. 51 (1887).

Page 303. *Diabasis* is preoccupied; read *Stichobasis* Kirby.

" 351. As the American species of *Dryopteris* belong to *Oreta*, the name *O. marginata* is preoccupied. The species may be called *O. moorei*.

Page 351. It appears to me that the genus *Camptochilus* would seem more appropriately placed among the Thyrididæ, where it would come close to *Hypolamprus*.

Page 390. *Parasa viridis* Hamps.; the name is preoccupied by an American species. The Indian form may be called *P. hampsonii*.

Page 496. *Peridrome* is preoccupied; read *Anagnia*.

The points in which Kirby's work must be changed in consequence of this excellent scientific revision of the moths of India need not detain us. This is well, as they are almost too numerous to mention.

The second volume, published in 1894, includes the Arctiidæ and Noctuidæ. Of the former, four subfamilies are recognized: Arctiinæ, Lithosiinæ, Nycteolinæ and Notinæ.

Page 32, for genus *Moorea* nov. read *Sebastia* Kirby, Cat. i, 383 (1893).

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1. Nova Acta Academiæ Cæs. Leop.-Carol. Nat. Curios, lix. Halle, 1893.—Systema Geometrarum zonæ temperatioris septentrionalis, pars vi, C. F. v. Gumppenberg.

2. Memoires de la Societe Zoologique de France, vi. Paris, 1893.—Zoological and anatomical study of *Tyroglyphus malus* and its hypopial nymph, J. Lignieres, figs. Zoological and anatomical study of *Hemisarcoptes coccisugus*, id., figs. Second report on the nomenclature of organic beings; report presented to the second International Congress of Zoology at Moscow, August, 1892, R. Blanchard. Contribution to the natural history of the Hanneton (*Melolontha vulgaris*), habits and reproduction, X. Raspail. Graphitose and septicemia in insects, I. Krasibshtshik. Zoological nomenclature, C. Girard.—Bulletin of the same for 1893. Description of a Mexican *Lecanium*, T. D. A. Cockerell. On a new Diaspid from Mexico, id., figs. On locomotory movements in insects, A. L. Herrera, R. Dubois. Studies on ants. C. Janet.

3. COMPTES RENDU. L'ACADEMIE DES SCIENCES. Paris, April 30, 1894.—On the glandular system of ants, C. Janet.—May 15. The Dipterous parasites of Acridians: the viviparous Muscidæ with sarcophagous larvæ; apteny and parasitic castration, J. K. d'Herculais.—May 28. On parthenogenesis in plumicolous Sarcoptidæ, Dr. E. Trouessart.

4. THE ENTOMOLOGIST'S RECORD. London, May 15, 1894.—The life-history of a Lepidopterous insect, comprising some account of its morphology and physiology (cont.), J. W. Tutt. *Coremia ferrugaria* Haw. and *C. unidentaria* Haw., L. B. Prout. Among the ancients, J. W. Tutt. On the larva of *Arctia caia*, with special reference to its correlated variations in plumage, moulting and hybernation (cont.), T. A. Chapman, M.D., 1 pl.

5. NATURE. London, May 10, 1894.—Some Oriental beliefs about bees and wasps, Kumagusu Minakata.

6. PROCEEDINGS OF THE ZOOLOGICAL SOCIETY OF LONDON, 1893, pt. iv, April 2, 1893.—On the Orthoptera of the island of Granada, West Indies, C. B. v. Wattenwyl, 1 pl. On the spiders of the family Attidæ of the island of St. Vincent, G. W. and E. G. Peckham, 2 pls. A list of the Hemiptera-Heteroptera collected in the island of St. Vincent by Mr. Herbert H. Smith; with descriptions of new genera and species, P. R. Uhler.

7. LE NATURALISTE. Paris, May 15, 1894.—Habits and metamorphoses of *Staphylinus murinus* L., Capt. Xambeu. New observation on the feeding of the Lucanidæ of France, and note on an antennal deformation in *Ctenoscelis major* L. Planet, fig.—June 1. The insects of the primary times, C. Brongniart. Metamorphoses of *Caryoborus tamarindi*, C. Decaux, figs.

8. DET KONGELIGE NORSKE VIDENSKABERS SELSKABS SKRIFTER, 1891. Trondheim, 1893.—Diptera brachycera [additions to the Norwegian fauna], V. Storm.

9. ANALES DE LA SOCIEDAD CIENTIFICA ARGENTINA. Buenos Aires, June, 1893.—The genus *Sapromyza* in America (conc.), F. L. Arribalzaga.

10. ANNALES OF THE NEW YORK ACADEMY OF SCIENCES, viii, 4, May, 1894.—A classification of Lepidopterous larvæ, H. G. Dyar.

11. ZEITSCHRIFT FUR WISSENSCHAFTLICHE ZOOLOGIE, lvii, 4. Leipsic, May 8, 1894.—Anatomical studies on the male genital system of the Coleoptera, K. Escherich, figs., 1 pl.

12. LE NATURALISTE CANADIEN. Chicoutimi, Quebec, May, 1894.—The mails and natural history, ed. Popular entomology, G. Beaulieu.

13. TRANSACTIONS OF THE ACADEMY OF SCIENCES OF ST. LOUIS, vi, 14, April 26, 1894.—Flowers and insects—Rosaceæ and Compositæ, C. Robertson.

14. POPULAR SCIENCE NEWS. New York, June, 1894.—Insect parasites of animals—ii, J. B. Smith.

15. THE GARDNERS' CHRONICLE. London, May 26, 1894.—The raspberry moth [*Lampronia rubiella*], anon.

16. BIOLOGISCHES CENTRALBLATT. Leipsic, May 15, 1894.—Some considerations on the formation of the germ layers, yolk cells and embryonal membranes of Arthropods, J. Wagner.

17. THE BRITISH NATURALIST. London, May 15, 1894.—Some curious aquatic larvæ [*Corethra plumicornis*], G. Swainson.

18. THE AMERICAN NATURALIST. Philadelphia, June, 1894.—Unusual flights of the grouse locust (*Tettigidea lateralis* Say) in northeastern Illinois, J. L. Hancock, 1 pl.

19. INTERNATIONALE MONATSSCHRIFT FUR ANATOMIE UND PHYSIOLOGIE, xi, 5. Paris, Leipsic, London, 1894.—To the knowledge of spermatozoa of Arthropods, K. Ballowitz, 2 pls. Remarks on the work of Dr. phil. Karl Ballowitz on the spermatozoa of Arthropods with further spermatological contributions concerning the Tunicates, Mollusca, Worms, Echinoderms and Cœlenterates, E. Ballowitz, 2 pls.

20. ZOOLOGISCHE JAHRBUCHER, vii, 3. Jena, May 11, 1894.—On the relations of the isotropous to the anisotropous layers in striped muscles, H. M. Bernard, 1 pl.

21. ZOOLOGISCHER ANZEIGER. Leipsic, May 28, 1894.—To the knowledge of the internal structure of *Pauropus Huxleyi* Lubb., P. Schmidt, 1 fig.—June 11. On J. Krassilstschik's communications on "die vergleichende Anatomie und Systematik der Phytophthires," with especial reference to the Phylloxeridæ, Dr. L. Dreyfuss.

22. KNOWLEDGE. London, June 1, 1894.—Insect secretions—ii, E. A. Butler, figs.

23. SCIENCE-GOSSIP. London, June, 1894.—Larvæ-nymphs of British dragonflies, W. H. Nunney, figs. A study of wasps' nests, J. T. Carrington, figs.

24. BULLETIN No. 24. Hatch Experiment Station of the Massachusetts Agricultural College. Amherst, Mass., April, 1894.—Insecticides; The horn fly, C. H. Fernald.—No. 25. Fungicides and insecticides, S. T. Maynard.

25. THIRD ANNUAL REPORT of the Director for the year 1893, Experimental Station, The University of Kansas. Topeka, May, 1894.—Contagious diseases of the chinch bug, F. H. Snow, director, 247 pp., 1 pl. Detailed results of experiments of infecting the bugs with the fungus *Sporotrichum*.

26. THE CANADIAN ENTOMOLOGIST. London, Ont., June, 1894.—The Coleoptera of Canada—i. The Cicindelidæ of Ontario and Quebec, H. F. Wickham, figs. The butterflies of Laggan, N. W. T.; account of certain species inhabiting the Rocky Mountains in latitude 51° 25′ (cont.), T. E. Bean. A method of securing moths' eggs, J. B. Lembert. New Cynipidæ, C. P. Gillette. Washington Phalangida, with description of a

new southern *Liobunum*, N. Banks. Florida Aphoruridæ, Dr. E. Lönnberg. Notes on the neuration and relationships of Pieridi and Anthocharidi, J. W. Tutt, figs. New species of *Nothochrysa*, A. D. Macgillivray. Remarks on *Zethus slossonæ*, W. J. Fox. On *Ochyria ferrugata* Cl., L. B. Prout. Notes, etc.—July, 1894. A preliminary review of the North American Decticidæ, S. H. Scudder. *Botys urticaloides* n. s., T. W. Fyles. Descriptions of the larvæ of certain Tenthredinidæ, H. G. Dyar. Further notes on scale insects (Coccidæ), T. D. A. Cockerell. On *Chionobas alberta* Elwes, W. H. Edwards. Canadian Hymenoptera—No. 4. W. Hague Harrington. The Coleoptera of Canada, ii. The Scarabæidæ of Ontario and Quebec, H. F. Wickham. Occurrence of *Triplogon occidentalis* in Manitoba, E. T. Heat.

27. ENTOMOLOGISCHE NACHRICHTEN, XX, 9. 10. Berlin, May, 1894.—Descriptions of new Lamellicornia, Buprestidæ and Cerambycidæ from Central and South America (cont.), A. F. Nonfried. On the collecting of fresh water sponges, with remarks on the insect larvæ dwelling in them, Dr. W. Weltner, figs. Some words on Herr Girschner's article in "Entomologische Nachrichten," 1894, p. 61, entitled "Beiträge zur Biologie von *Hilara*," Prof. J. Mik. On the abdomen of the Cleridæ, Dr. C. Verhoeff.

28. TRANSACTIONS OF THE ENTOMOLOGICAL SOCIETY OF LONDON, 1894, pt. ii, June, 1894.—On the phylogeny of the Pierinæ, as illustrated by their wing-markings and geographical distribution, F. A. Dixey, 3 pls. Some notes on the microlepidoptera whose larvæ are external feeders, and chiefly on the early stages of *Eriocephala calthella* (Zygænidæ, Limacodidæ, Eriocephalidæ), T. A. Chapman, 2 pls. Description of the larva and pupa of *Papilio homerus* Fab., C. B. Taylor. Some new species of Membracidæ, Rev. Canon Fowler.

29. COMPTES RENDU. SOCIETE DE BIOLOGIE. Paris, May 26, 1894.—On parthenogenesis of plumicolous Sarcoptidæ, Dr. E. Trouessart.—June 2. An acarine parasite of carnations, L. Mangin.

30. THE ANNALS AND MAGAZINE OF NATURAL HISTORY. London, June, 1894.—Observations on the derivation and homologies of some Articulates, J. D. Dana (from Am. Jour. Sci. May, 1894). Lateral eyes in the Galeodidæ, H. M. Bernard, figs. Description of a new Longicorn beetle of the genus *Diaxenes* which had been found injuring some imported orchids, C. J. Gahan, fig.—July, 1894. Two new Coccidæ from the arid region of North America, by T. D. A. Cockerell. On a small collection of Odonata from Queensland, with descriptions of five new species, W. F. Kirby. Distribution of Coccidæ, T. D. A. Cockerell.

31. INDIAN MUSEUM NOTES, iii, 3. Calcutta, 1894.—A new Coccid from Ceylon, G. B. Buckton, fig. A new enemy of the custard-apple, E. L. Ragonot, transl. by F. Moore, fig. Notes on Indian Aphidæ [on Bamboo], G. B. Buckton. Miscellaneous notes from the entomological section, E. C. Coates, figs.

32. THE ENTOMOLOGIST. London, June, 1894.—The new entomology, W. F. deV. Kane.—July, 1894. The hunting spider of the vine, T. D. A. Cockerell. Catalogue of the Lepidoptera of Ireland, W. F. de Vismes Kane. Notes on the synonymy of Noctuid moths, A. G. Butler.

33. ANALES DEL INSTITUTE FISICO-GEOGRAFICO Y DEL MUSEO NACIONAL DE COSTA RICA; tome iv, 1891. San José de Costa Rica, 1893.—Arachnological fauna of Costa—Epeiridæ, A. Getaz.

34. BIOLOGIA CENTRALI-AMERICANA. Part cxvi. London, April, 1894.—Arachnida-Araneidea, pl. 14, O. P. Cambridge. Orthoptera, pp. 161–192, H. de Saussure and L. Zehnter. Lepidoptera-Rhopalocera, vol. ii, pls. lxxix, lxxx, F. D. Godman and O. Salvin. Hymenoptera, vol. ii, pp. 305–312, pl. 13, P. Cameron.

35. JOURNAL OF THE CINCINNATI SOCIETY OF NATURAL HISTORY.—Biological notes on the reared parasitic Hymenoptera of Ohio and Indiana, with descriptions of thirteen new species by W. H. Ashmead, F. M. Webster.

36. THE ENTOMOLOGIST'S MONTHLY MAGAZINE. London, July, 1894.—Notes on the earlier stages of Nepticulæ, with a view to their better recognition at this period of their life, John H. Wood. Notes on *Thermobia domestica* and its occurrence in the United States, A. S. Packard. Supplement to annotated list of British Tachinidæ, R. H. Meade.

37. FIFTH ANNUAL REPORT OF THE MISSOURI BOTANICAL GARDENS.—The emergence of *Pronuba* from the Yucca capsules, J. C. Whitten.

38. ZOOLOGISCHE JAHRBUCHER, vol. vii, No. 5.—General biology of butterflies, Dr. Adelbert Seitz. The fauna of Lin-Kin, island Okinawa, Dr. Adolph Fritz.

39. The butterflies of North America with colored drawings and descriptions, W. H. Edwards. Third series, part 15. Contains: *Arg. astarte*, *Arg. alberta*, egg and larva, *Chionobas subhyalina*, *norna*, *C. semidea* and *transformationis*.

40. JOURNAL OF THE NEW YORK ENTOMOLOGICAL SOCIETY, vol. ii, No. 2.—On the Lycosidæ of Colorado, Nathan Banks. Synopsis of the Dipterous genus *Symphoromyia*, D. W. Coquillett. Description of a new tree cricket, *Oecanthus pini*, Wm. Beutenmüller. Preliminary revision of the Bombyces of America north of Mexico, B. Neumoegen and H. G. Dyar. New West African butterflies G. A. Ehrmann. Some new Santo Domingo Tachinidæ, C. H. T. Townsend. Note on *Cicindela scutellaris* var. *lecontei*, J. Alston Moffat. Notes on some parasites of *Vespa*, Rev. J. L. Zabriskie. Note on *Psephenus lecontei*, C. W. Leng. Preliminary hand-book of the Coleoptera of Northeastern America, C. W. Leng and Wm. Beutenmüller. Note on the periodical Cicada, Wm. T. Davis.

41. PROCEEDINGS OF THE ZOOLOGICAL SOCIETY OF LONDON for 1894, part 1.—On a collection of butterflies made in Manica, tropical Southeast Africa by Mr. F. C. Selous in the year 1892, Roland Trimen.

42. THE KANSAS UNIVERSITY QUARTERLY, vol. iii, No. 1.—The genus *Dolichomia*, with description of a new species, S. W. Williston. Toxonomic value of the scales of the Lepidoptera, V. L. Kellogg.

43. The Orthoptera of Kentucky by H. Garman, from sixth annual report Kentucky Agricultural Experiment Station.

44. The periodical Cicada, or the "Seventeen-year Locust," J. A. Lintner.

45. ANNALES SOCIETE ENTOMOLOGIQUE DE BELGIQUE, vol. xxxviii, No. 6.—Revision of the catalogue of the Longicorns of Belgium, Aug. Lameere. Descriptions of Algerian Coleoptera, L. Fairmaire. Coleoptera of intertropical Africa, L. Fairmaire.

46. Species Hymenopteres des D'Europe and D'Algérie, Edmond and Ernest André, July, 1894; pt. 47.

47. ANNALEN DES K. K. NATURHISTORISCHEN HOFMUSEUMS, vol. viii, Nos. 3 and 4.—On *Ampulex*, Jurine (S. L.) and closely allied Hymenopterous genera, Franz Fredr. Kohl. The Lepidoptera fauna of the Canaries, Dr. H. Rebel and A. Rogenhofer.

48. ANNALES DE LA SOCIETE LINNEENE DE LYON, vol. xxxviii, 1891.—Nests and metamorphoses of insects, Captain Xambeu.

49. PERIODICAL OF THE HUNGARIAN NATIONAL MUSEUM. Budapest, pts. 1, 2, 1894.—New species of *Pepsis*, Alexandro Mocsary.

50. BULL. DE LA SOCIETE DES SCIENCES NATURELLES DE L'OUEST DE LA FRANCE, vol. iv, 1894.—The digestive tube of the Orthoptera, l'abbe J. Dominique.

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The Entomological Section

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

PROCEEDINGS OF MEETINGS.

MAY 24, 1894.

A regular stated meeting of the Entomological Section of the Academy of Natural Sciences was held in the Hall, S. W. cor. Nineteenth and Race Streets, this evening, Dr. G. H. Horn, Director, presiding. Members present: Calvert, Welles, Ridings, Skinner, Laurent, Liebeck. Associates: Fox, Reinecke and Dr. Castle. Mr. Calvert spoke of the Neuroptera collected by the expedition sent by the California Acad. of Sciences to the peninsula of Lower California. Sixteen hundred specimens were

captured and put into strong alcohol, which had the effect of preserving the colors of the specimens remarkably well. The collection was of interest in extending a knowledge of geographical distribution. It was rich in species of *Aeschna*, whereas on the East coast there are but three species. The speaker pointed out the methods of separating the California species. The species *luteipennis* and *californicus* are types of groups, and are separated by the anatomy of the appendages, the former having an excision and the latter a carina. Other species are *cornigera*, *constricta*, *multicolor* and *ventricolis*. The comparative anatomy of the appendages in these species was also pointed out. The females could not be separated, except in one case, and that was by the size of the specimen.

Dr. H. SKINNER, *Recorder*.

The following papers were read and accepted by the Committee for publication in ENTOMOLOGICAL NEWS:

DESCRIPTIONS OF NEW HYMENOPTERA.

By T. D. A. COCKERELL, Entomologist N. M. Ag. Ex. Station.

Melissodes tristis Ckll., n. sp. ♂.—Black with pale ochreous pubescence. Length about 10 mm. Face strongly and closely punctured, the between the eyes and the ocelli the punctures become much smaller and less crowded. Clypeus strongly punctured, black; mandibles dark reddish, except their black shining bases. Head clothed with long pubescence, pale ochreous, except that below the eyes, which is white. Antennæ rufous on one side and blackish on the other, the basal and two terminal joints fuscous. First joint of flagellum conspicuously longer than second, and longer than the first joint of *M. agilis*. Thorax strongly punctured, thickly clothed with pale ochreous pubescence, which becomes white on the sides and beneath. Abdomen rather dull, rather finely and sparsely punctured, pubescence as in *agilis*, but paler. Last segment reddish, with a purplish lustre, its apex broadly truncate. The tooth at the side of the penultimate segment is not so large as in *agilis*. Femora and tibiæ black, tarsi reddish; tibiæ and tarsi with long pale pubescence. Inner tooth of claw on middle foot decidedly shorter in proportion to outer than is the case in *agilis*. Wings hyaline with rather pale brown nervures. Third submarginal cell with its radial side conspicuously shorter than that portion of the third transverso-cubital nervure from the radial nervure to the bend; whereas in *agilis* these are about equal. This character in *tristis* seemed certainly of specific value, but on examining the second example of the new species the third submarginal was found to be as in *agilis*.

Hab.—Las Cruces, N. Mex., Aug. 21, 1893. Two specimens. The *M. agilis* used for comparison is one I caught at Iuarez,

Mex., on August 26th. It was identified by Mr. Fox, and is, I believe, an addition to the Mexican fauna. Mr. Fox, who has access to the types of Cresson, assures me that *M. tristis* is undescribed. He remarks that it resembles the ♂ of *M. menuacha*, *agilis* and *confusa*, but differs in not having a yellow clypeus.

Calliopsis subalpinus Ckll. n. sp. ♂.—Black, with the antennæ and front legs partly rufous. Length about 8.5 mm. Head broad, somewhat broader than thorax, shining black, finely and rather sparsely punctured, rather thinly clothed with long grayish white hairs, which are denser on the face. Clypeus pale primrose-yellow, except a black patch, broader than long and broadly notched below, on its upper median border, and a small black spot on each side of this patch. The space between the clypeus and the antennæ, and a band along the front lower margin of each eye, are also pale yellow. Mandibles pale yellow, with the tips rufous; antennæ with the flagellum more or less yellowish rufous, the last two segments being wholly so; scape black. Length of antennæ 2⅓ mm. Thorax oval, shining pitch-black, sparsely punctured, with hairs like those on the head. Abdomen black, shiny, finely and rather closely punctured; the last three segments conspicuously hirsute at sides with pale brownish hairs; the last five segments dorsally with a fine appressed pubescence of the same color, while on the first two segments the hairs are sparse and more inconspicuous. The general appearance produced by the hairs of the abdomen at a glance is as if it were dusty. Length of abdomen nearly 5 mm. Legs black, hairy like the thorax; tarsi of front and middle legs, and anterior part of tibiæ of front legs orange-rufous. Wings hyaline, brilliantly iridescent, green and pink in certain lights, venation fuscous; apex of primaries conspicuously fuscous, the fuscous portion being sharply defined, and about as large as the second submarginal cell. Marginal cell very elongate, narrowly truncate at apex; first submarginal over twice as long as broad, second submarginal subquadrate, narrowed above.

Hab.—Las Cruces, N. Mex., 1893. One specimen.

Mr. Fox assures me that this species is hitherto undescribed. In Custer County, Colorado, I took *Calliopsis* in the high-alpine zone, but not in the mid-alpine (Tr. Am. Ent. Soc. xx, 310). The present species, from 3800 feet in southern New Mexico, is quite different from the high-alpine one I found in Colorado.

Nomada penniger Ckll. n. sp.—Black with reddish legs and abdomen; length about 6 mm. Head about as broad as thorax, broader than long, eyes large. Head pitch-black, shiny, finely punctured; face covered with appressed grayish silvery hairs, which are pinnately barbed; antennæ very dark brown; mandibles reddish; clypeus reddish. Scape of antennæ with conspicuous appressed pale hairs; funicle without hairs,

but very finely pubescent towards the end. Ring-joint hairy. First joint of flagellum fully one-third longer than second. Thorax circular seen from above, obliquely oval seen from the side. Dorsum of mesothorax and scutellum shining black, deeply punctured; tegulæ rufous; prothorax, sides of thorax, postscutellar and metathorax, except a shining central or dorsal portion, thickly clothed with appressed silvery hairs, resembling those on face. Mesothorax, scutellum and metathorax with a slight median furrow. Abdomen broadly ovate-lanceolate, about as long as head and thorax; shiny, smooth on dorsum, except the descending portion of the first segment, and the lateral and inferior margins of the remaining ones, which are silvery, with minute appressed hairs. There is also a microscopic and nearly imperceptible pubescence on the dorsum of all the segments. Basal portion of first segment, distal half of third, and the whole of the dorsum of fourth, fifth and sixth segments black; abdomen otherwise dark rufous. Legs rufous, pubescent, tibiæ and first joint of the tarsus presenting a black cloud on their outer surface; tibiæ and first joint of tarsus silvery, with appressed hairs; tibial spurs black. Wings extending to end of abdomen; hyaline, primaries with the external margin broadly pale fuscous, the color forming a darker cloud near the apex. Discal portion of marginal cell also with a fuscous cloud. Third submarginal cell conspicuously narrowed above. Marginal cell narrowly truncate at apex. Veins dark brown.

Hab.—Las Cruces, N. Mex., July 29, 1893. One specimen.

Mr. Fox states that the species is undescribed; this I could not have ascertained for myself, not having access to many of the published descriptions.

OBITUARY.

LUCIEN FRANCOIS LITHIERRY, the celebrated Hemipterist, died in Lille on the 4th of April, 1894, aged 64 years.

We have lately learned of the death of Mr. OLIVER J. STALEY, of Marshall, Saline County, Missouri. Mr. STALEY was doing good work in his locality, and we heard of his death with sorrow and regret.

ENTOMOLOGICAL NEWS for June was mailed May 31, 1894.